

# Claims

- [c1] A workpiece carrier comprising:
  - a carrier housing
  - a workpiece bladder coupled to said housing, said workpiece bladder having a surface configured to press against a surface of a workpiece; and
  - at least one pressure transducer mounted to said carrier housing for controlling pressure provided to said workpiece bladder.
- [c2] The workpiece carrier of claim 1 wherein said bladder comprises a plurality of pressurizable zones and each zone has a pressure transducer for monitoring pressure to that zone.
- [c3] The workpiece carrier of claim 1 further comprising at least one valve mounted to said carrier.
- [c4] The workpiece carrier of claim 1 further comprising a control board mounted to said carrier.
- [c5] The workpiece carrier of claim 1 further comprising means for automatically calibrating said at least one pressure transducer.

- [c6] An integrated pressure control system for planarizing a workpiece comprising:
  - a multizone workpiece carrier having a plurality of pressurizable zones; and
  - a pressure control system mounted to said carrier for controlling pressure provided to said plurality of pressurizable zones.
- [c7] The integrated pressure control system of claim 6 further comprising an automatic calibration system for calibrating said pressure control system.
- [c8] The integrated pressure control system of claim 6 wherein said pressure control system comprises at least one pressure transducer.
- [c9] The integrated pressure control system of claim 8 wherein said pressure control system further comprises at least one valve.
- [c10] The integrated pressure control system of claim 6 further comprising a rotary union for connecting electrical lines to said pressure control system.
- [c11] The integrated pressure control system of claim 10 wherein said rotary union further connects an air supply line and an air exhaust line to said pressure control system.

- [c12] A carrier insert for a multizone workpiece carrier comprising:  
a pneumatic manifold having a plurality of ports in alignment with a plurality of pressurizable zones located in said multizone workpiece carrier; and  
at least one pressure transducer mounted to said pneumatic manifold.
- [c13] The carrier insert of claim 12 further comprising at least one valve mounted to said pneumatic manifold.
- [c14] The carrier insert of claim 13 further comprising a control board mounted to said pneumatic manifold.